



Design and Application of MOOC Teaching Platform for College English Based on MOODLE System

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Abstract

In order to promote the informatization reform of college English education in China, and solve the problems existing in current English teaching, such as single teaching form, limited communication between teachers and students, and insufficient environmental conditions for practicing listening and speaking skills, this paper takes the online teaching mode of MOOC as a reference, and establishes a college English online teaching platform based on moodle system using PHP language and MySQL database. The platform has developed functional modules of online classroom, listening practice, oral practice, homework questions and communication forum. It effectively enriches the English teaching methods in colleges and universities in China, provides online channels for students and teachers to answer English questions, and makes up for the lack of environment for practicing English listening and speaking ability in colleges and universities in China, thus further helping colleges and universities to improve the quality of college English teaching.

Keywords: MOODLE; MOOC; College English; Teaching platform

1 INTRODUCTION

In college teaching, English teaching occupies an important position in the overall education system of colleges and universities, and it is a course that all majors need to focus on. It can not only improve college students' English level, but also be an important condition to help college students adapt to the increasingly open and complex social requirements in China. College English course is also an important part of humanistic education in colleges and universities, which has both instrumental and humanistic characteristics. Therefore, optimizing the mode of college English education is an indispensable part of promoting the development of college education in China.

However, at present, most colleges and universities in China generally adopt the centralized teaching method in English teaching. Under such circumstances, in the face of the uneven English foundation of students in the class, the implementation of a unified teaching schedule and plan makes it difficult for teachers to take care of all the students in the class, unable to teach students in accordance with their aptitude, and often attend to one thing and lose sight of another in teaching. Moreover, the two-way communication between teachers and students

will also face considerable obstacles, making it difficult to establish the trust between teachers and students [9]. Besides, "deaf-mute English" is a common problem of college students in China in the process of English learning. In recent years, with all kinds of English electronic products going deep into our lives, many English students have made progress in listening and speaking, but they still haven't improved much. The reason is not only that domestic English learners are shy of opening their mouths, but also that there are fewer opportunities for training English listening and speaking skills in college campuses. At present, China's higher education is in the deep water area of information reform.

In view of the above situation, the reform of college English teaching mode is imperative. The state attaches great importance to information-based education and teaching. At the Davos Forum in 2017, Premier Li Keqiang pointed out that new formats of "internet plus" emerge in endlessly. Only by following the trend can we seize new opportunities. In 2018, the Ministry of Education issued the Education Informatization 2.0 Action Plan. At the beginning of 2021, the Chinese government issued the 14th Five-Year Plan, which proposed to build a high-quality education system, and to realize the overall modernization of education and build an educational power by 2035. Therefore, it is an

important strategic choice for China's educational reform and development in the new era to promote the development of educational informatization. Therefore, college English teaching should conform to the trend of global informatization and gradually realize "internet plus" education [3]. With the deep integration of Internet and teaching, more and more advanced technologies have been applied in the field of education, which has increasingly become an indispensable part of educational development. MOOC is the product of the new era under the background of information technology. It opens a new mode of "Internet+education", breaks through the traditional limitations of time, place and space, and provides a brand-new learning method and diversified knowledge dissemination mode. It is defined as a large-scale online open course. MOOC's open education platform, massive high-quality resources and unique teaching methods have a great impact on the current education model. In order to apply mooc teaching mode to college English teaching, it is necessary to choose appropriate network teaching platform technology. The author thinks that Moodle is the most mature and widely used teaching platform nowadays. Moodle teaching platform is a new curriculum management and educational learning platform derived from modern information technology, and it is a modular object-oriented dynamic learning environment. Moodle is powerful, operable and widely used [2].

In view of the above viewpoints, the author believes that MOOC teaching platform of college English based on moodle system should be developed. During the development process, based on moodle system, PHP language and MySQL database are used to quote and rebuild its components, so as to establish a new college English teaching platform under the MOOC teaching mode. Students can break the time and space constraints and choose courses in online English classes according to their own situation. After class, students can browse rich online English video resources through this system to improve their listening and speaking English ability, and make up for the lack of environment for practicing English listening and speaking ability on campus in our country. In addition, students and students, students and teachers can directly use the platform for online communication, enhance students' English

communication and collaboration ability, and provide online channels for students and teachers to answer English questions.

2 KEY TECHNOLOGY

2.1 Moodle

Moodle has evolved from an academic project into a world-famous virtual learning environment. Moodle is an open source curriculum management system, which is the abbreviation of modular object-oriented dynamic learning environment. Moodle's guiding ideology is social constructivist learning theory, which is characterized by interaction. Constructivists believe that people can learn better when they interact with the materials they learn, construct new materials for others, and discuss materials with others. Knowledge construction is obtained through interaction with other people and learning materials in social situations. By analyzing students' needs, understand what moodle can do and how to use different features of moodle to achieve your course goals. By adding static materials, interactive activities and social characteristics to the curriculum, we can help students reach their learning potential. Moodle can be applied to traditional classroom teaching, complete online teaching and distance teaching, all of which can provide strong resource support [5].

Moodle is composed of open source LAMP framework, including Linux (operating system), Apache(web server), MySQL (database) and PHP (programming language). The main building blocks of moodle are shown in Figure 1. They are divided into code (php, html, css, javascript) and data (mainly adding values through Moodle interface). Moodle database, modules (such as resources and activities), plates, plug-ins and other entities represent the code. It usually points to the dirroot directory in the file system where moodle directory exists. Courses, users, roles, groups, grades and other data in moodle such as learning resources added by teachers, posts published by students and settings of system administrators are stored in Moodle database. However, the user's pictures and uploaded jobs are stored in another moodle directory, called moodledata, and the stored directory is called dataroot.

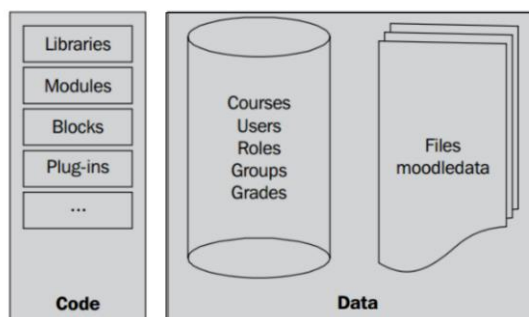


Figure 1: The main modules built by Moodle

2.2 PHP language

Server-side HTML scripting/programming language is a simple, object-oriented, explanatory, robust, secure, high-performance, architecture-independent, portable and dynamic scripting language. It is a multi-purpose scripting language which is widely used in OpenSource, especially suitable for Web development and can be embedded in HTML. Its syntax is close to C, Java and Perl, and it is easy to learn. This language allows Web developers to quickly write dynamically generated web pages.

The PHP usage process is shown in Figure 2. Enter the content in the search box of the browser and click Search. The browser sends a request to the service pointed by the address bar. When the server receives the request, it asks the PHP engine what the user needs. PHP starts to execute the written code, searches the contents of the database through MySQL (of course, it may not be necessary), finds out the database results through MySQL statements, and returns them to PHP. PHP code receives the query results, processes them and returns them to the browser [1].

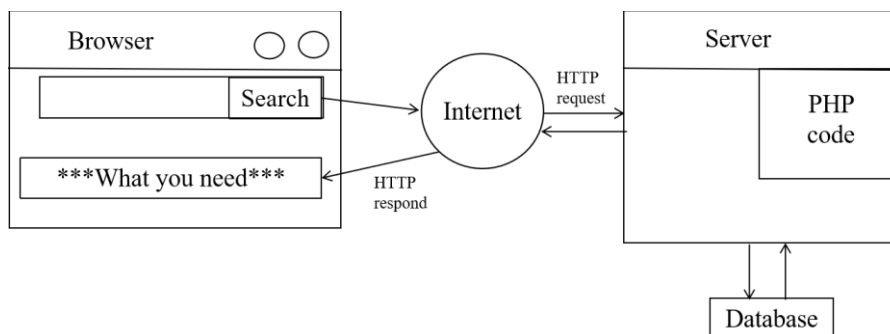


Figure 2: PHP language usage process

2.3 LAMP technical framework

The so-called LAMP is an open source software of a dynamic website or server composed of Linux, Apache, MySQL/MariaDB, PHP/Perl/Python, as shown in Figure 3. LAMP architecture is one of the mature enterprise website application modes at present, which refers to a whole system and related software that work together, and can provide dynamic website services and its application development environment. Except Linux, all other components are independent programs, which can be installed on different servers. However, because they are often used together, they have higher and higher

compatibility, and together they form a powerful Web application platform. Apache handles http requests, builds response messages and other services, configures Apache to support the response of php programs (through php modules or FPM), and configures Apache's specific methods of handling PHP programs, such as handing PHP programs to fcgi through reverse proxy. PHP/Perl/Python provides apache's access interface, namely CGI or Fast CGI, provides the interpreter of PHP programs, and provides the basic environment of connection functions of mairadb database. MySQL/MariaDB provides PHP programs to store data and PHP programs to read data [10].

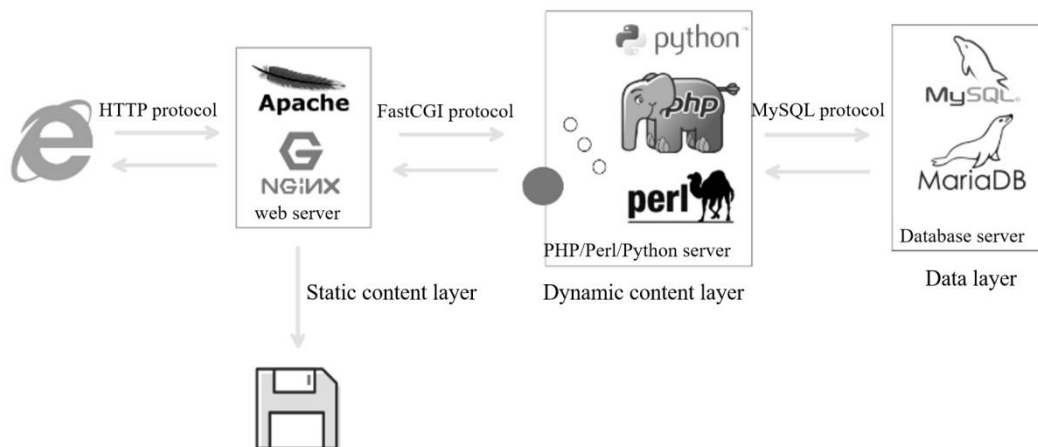


Figure 3: LAMP architecture composition

2.4 Development environment

Moodle-based college English teaching platform in MOOC chooses LAMP(Linux+Apache+MySql+PHP) technology framework to build the system environment. The Linux system based on Centos 7 system is easy to operate and stable, which can give full play to the functionality of Moodle platform. Because MySql is the established database form of Moodle platform, and its integration with Apache and PHP is good, MySql 8.0.28 database is selected, and ADODP interface is used to complete the orientation of database layer, so that Apache 8.0, which supports multiple systems and has open code, can set up a Web server, and PHP development language is used to design dynamic pages on the server side in PDT environment. When building LAMP platform, the installation order of each component is Linux, Apache, MySQL, PHP. There is no strict order requirement for the installation of Apache and MySQL, while the installation of PHP environment is generally put at the end, which is responsible for communicating the web server and database system to work together. After setting up LAMP environment, download and install Moodle. Because we are using php5.4, our moodle component uses version 3.0 for stability. First, create a folder where moodle stores uploaded data. After that, you can access the server from the client, enter the server address (`http://<localhost >/moodle/install.php`) on the client, then enter confirm to select MySQL database, and then follow the instructions. The page shows that the server has been built successfully, so we can begin to use Moodle to develop this system. Through the introduction of the above system-related technical theories, we have determined the overall environment of system development, the configuration of related software and tools, and the technical feasibility of the overall project.

3 REQUIREMENTS ANALYSIS

3.1 Functional requirements

MOODLE-based college English MOOC teaching platform system should meet the stability and reliability, and the teaching platform should provide 24-hour uninterrupted access service, while ensuring that users can run without failure during long-term access. Through this system, teachers can carry out teaching activities anytime and anywhere, while students also need to break the time and space constraints to carry out learning activities. Users can not only participate in basic teaching activities in the online classroom, but also participate in supplementary teaching activities such as listening and speaking exercises, forum discussions, homework questions and stage exams outside the online classroom.

Moodle-based college English teaching system is a platform for college students to learn individually. Students can learn and review independently through various English learning resources including listening and speaking practice videos in the teaching platform. At the same time, teachers adjust their teaching methods in time according to the information of students' English learning fed back by the system, so as to better grasp the important and difficult points in teaching. So as to help teachers give appropriate guidance to different individuals' learning interests and abilities. Introduce the exchange forum to guide students to take the initiative and cooperate in extracurricular learning activities, so that the teaching can truly achieve the teaching goal of respecting students' individual differences and teaching students according to their individual needs.

3.2 Global design

The English teaching platform of MOOC University, which is developed based on Moodle system and various module plug-ins in its community, adopts B/S three-tier system architecture, and adopts PHP environment to build a modular object-oriented dynamic learning environment. The system architecture diagram is shown in Figure 4. B/S three-tier system architecture can facilitate the separation of data access, business logic and user interface structure, and uses a high cohesion and low coupling modular structure design method. At the same time, these modules can be refined and expanded, and users can design and integrate them according to their own needs, thus forming a perfect and flexible extensible platform. The main function of this system is concentrated on the server, and the client installs the browser to realize the data interaction with the database by webservice, which simplifies the development and maintenance of the system. Enter the presentation layer of the system through the user's browser. Presentation layer is the user-oriented application layer, which is the key support for the interaction between the client users and the system. The static decoration of the page is based on CSS and HTML language by ajax technology, and the dynamic function of the page is increased by JavaScript. We add, delete and expand the system functions at the business logic level, and can complete the modular update, improvement and service of the system by modifying the corresponding interfaces. The data layer is mainly used to store user information, subject data, interactive data, job question bank and other data, and seal them into different types of databases. When users send data requests, this layer can complete the access to MySQL database through ADODB according to the difference of calling methods and parameter types, and feed the obtained data back to business logic [4]

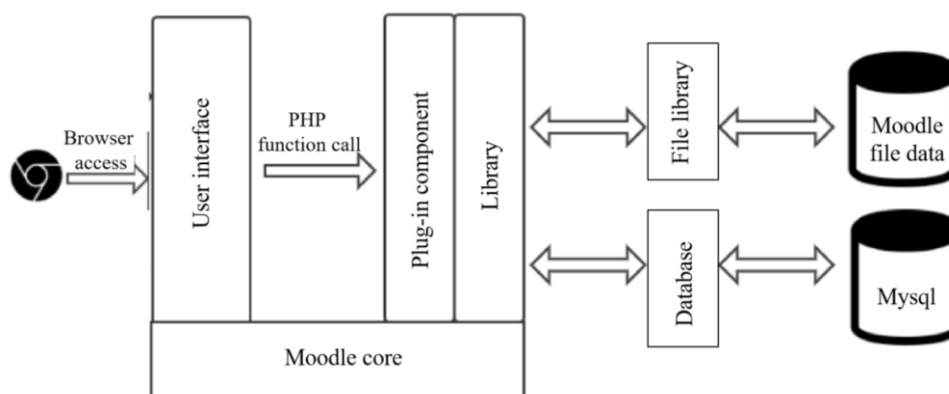


Figure 4: Overall structure diagram of college English teaching system based on Moodle

4 FUNCTION IMPLEMENTATION

According to the different needs of teachers and students, the system sets up two client ports for teachers and students.

4.1 Student side

The student side sets up the main functional modules of online classroom, homework questions, stage exams, listening and speaking exercises and communication forums. First of all, students can click on the homepage to enter the online classroom module, watch the English learning open course selected by the teacher and the college English teaching video recorded by the teacher himself for online learning. In particular, the breakpoint resume function is added to the player. We have modified the video playing module, so that students can continue to learn from the nodes they have already learned, or they can choose any desired node to repeat learning, and the function of video breakpoint continuous playing is shown in Figure 5. After the students have finished studying each course, they can also take online homework tests by entering the functional module of homework questions in the system. After the tests, they can check their test scores and mistakes. In addition to the homework questions, the system also conducts semester exams through the stage exam function module, and summarizes all the knowledge points of each course to set up topics. Students can clearly know their overall learning situation in the subject by answering questions [8]. For the listening and speaking training courses in online classroom, there are also oral practice modules and listening practice modules. Students can train repeatedly according to the reading text set by the teacher through the oral practice module. After the training results are submitted, the system will evaluate the learners' reading aloud in real time, so that learners can adjust their reading aloud, intonation and speed in time to achieve good

reading results. When students enter the listening practice module, enter the listening test page, watch all kinds of current news or classic original videos, and practice listening according to the corresponding subtitles. [7] The functional module of the communication forum has four functional sub-modules, namely, course bulletin board, opinion book, one-on-one private chat area and experience sharing. Students can check the notices issued by the teacher in the course bulletin board, make suggestions on teaching materials or teaching methods in the opinion book, ask the teacher about the problems encountered in the English learning course in the one-on-one private chat area, and discuss the learning experience of English courses with classmates in the experience sharing.

4.2 Teacher side

The teacher side also has four main modules of the student side, but the specific functions of each module are added on the basis of the student side. In the online classroom module, teachers can record and submit online classroom English teaching videos required by the students of the system through cameras and microphones, or they can select and quote open courses of other excellent English teachers. And teachers can browse each student's online classroom learning time record for supervision. In the module of test assignment and stage examination, teachers regularly upload and maintain the content of test questions bank, and Moodle will present all students' test scores in the form of charts and Excel spreadsheets for teachers to consult and download. By entering the communication forum module, teachers can make announcements about English course learning, check students' suggestions on teaching, and answer students' problems in English learning. Watch the students' experience in learning and sharing English courses [6].

```

require_once(".././././config.php");
$urlparam=$_GET['url'];
$timeparam=$_GET['time'];
global $DB;
global $USER;
if($DB->record_exists('videoseek_my',
array('videourl'=>$urlparam,'userid'=>$USER->id)){
    $response=$DB->get_record('videoseek_my',array('videourl'=>$urlparam,'userid'=>$USER->id));
    //echo $response->videotime;
    if((int)$timeparam-(int)$response->videotime>20){
        echo $response->videotime;
    }
    else{
        echo 0;
    }
}
else{
    echo 0;
}
}

```

Figure 5: Code implementation of video breakpoint resume broadcast function

5 CONCLUSIONS

This paper mainly studies moodle platform and English MOOC teaching mode, puts forward the logical framework and implementation method of college English massive open online course teaching platform based on Moodle platform, and describes the specific functional modules and teaching design process in detail, hoping to provide a new direction for college English teaching mode in China. The application of moodle in college teaching in China started late, and the overall level is very limited. We should actively make use of the convenience provided by moodle platform, and use its essence for our own use. The reform and development of college English teaching based on moodle has a long way to go. Due to the limited time and ability, this research still has many limitations. I hope it can be improved and perfected in the follow-up research, such as further expanding the category of interactive curriculum design and adding more humanized and personalized functional modules, so as to make the research design more universal and practical.

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